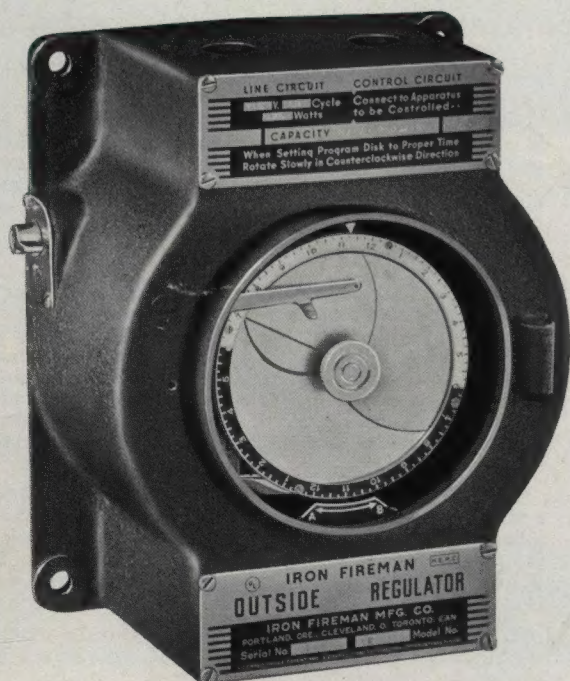


LET THE

*Outdoor Weather*

CONTROL YOUR HEATING



## INDOOR COMFORT UP

### *Heating Costs Down*

These results are possible because one remarkable instrument — the Iron Fireman Outside Regulator—does the following six important jobs:

1. Automatically controls inside temperature according to outside weather conditions.
2. Automatically starts and shuts down heat in accordance with both outdoor temperature and the hours building is in use.
3. Gives periodic stoker operation, with heating periods automatically lengthened and shortened in strict accordance with changes in outdoor temperature.
4. Eliminates excessively long "on" and "off" periods in stoker operation, which result in the fuel waste and discomfort of overheating, and the discomfort of chilly indoor temperatures.
5. Stops the opening of windows by tenants and employees, due to overheating, with resulting waste of fuel.
6. Operates in accurate adjustment to the needs of each individual heating plant and heating program required.

30 E

*The* **IRON FIREMAN**  
**OUTSIDE REGULATOR**



# The IRON FIREMAN OUTSIDE REGULATOR

## This New Control Makes Both Modern Precision Heating and Increased Fuel Economy Possible.



The development of the Iron Fireman Outside Regulator constitutes the most recent advance in modern heating equipment. This new remarkable instrument controls the operation of the Iron Fireman stoker exactly to meet both outdoor weather conditions and indoor heating temperature and program requirements, during each 24-hour cycle.

A room in a hotel, a suite in an apartment house, a seat in a theatre, or space in an office, store or factory building are all more desirable — and more usable and salable — if the indoor temperature is properly controlled.

Either overheating or underheating results in dissatisfaction or complaints from tenants, customers, or employees. And in addition, overheating means wasted fuel and higher operating costs.

While the maintenance of a comfortable temperature during hours when the building is in use is essential, holding this level when the building is not being used is a wasteful extravagance, and the Iron Fireman Outside Regulator was specifically designed to eliminate discomfort and fuel waste.

### *Keep Indoor Heat in Step with Both the Weather and the Clock*

The Iron Fireman Outside Regulator will operate your Iron Fireman stoker and your boiler plant in accordance with the following five basic heating requirements:

1. The heating of the building should be started at the proper time, in the morning, as determined by the outdoor temperature.

We all recognize that the colder the outdoor weather, the earlier in the morning the heating plant must be started, in order to bring the indoor temperature up to proper level at the required hour. Should the weather be warmer in the morning, the heating plant should be put into operation at a later hour.

With the Iron Fireman Regulator this is done by installing a temperature sensitive control bulb outside the building, where it constantly registers the outdoor temperature. Working in conjunction with the program control, built into the instrument, it automatically starts the stoker at the time necessary, in order to bring the indoor temperature up to normal daytime level at the proper hour.

2. Heat should be generated at the proper rate and for the correct length of time to bring the building up to the correct temperature level at the proper hour.

During the morning "heating up period" the boiler plant should be operated at its most efficient rate in order to bring the building up to daytime temperature level quickly, and with maximum fuel economy. The Iron Fireman Outside Regulator does this automatically.

3. The heating plant should be operated at intervals of the correct length throughout the day, in order to maintain the comfortable indoor temperature required.

Once the building is brought up to the desired temperature level, it is no longer necessary to operate the Iron Fireman stoker and the heating system continuously at maximum capacity. According to present-day practice, most heating systems are designed to heat inside occupied spaces to 70 degrees, with an extreme outdoor temperature of zero or considerably below zero, depending on the locality. Although this is sound engineering practice, weather records show that the heating systems must be operated under these extreme, maximum, outdoor weather conditions only for a few days during an average year. It is consequently desirable to operate the heating system during most of the heating season with a reduced flow of heat to the building. Obviously, it is impossible to change the size of the radiators to meet varying outside temperatures. Valving down and thus reducing the circulation of steam is not good practice, since this would result in unbalanced radiation, some radiators receiving more, and others less, of their proper supply of steam.

To meet this situation, the Iron Fireman Outside Regulator automatically turns the stoker on and off for proper periods of time, filling all radiators with steam during the "on" periods and allowing them to empty during "off" periods.

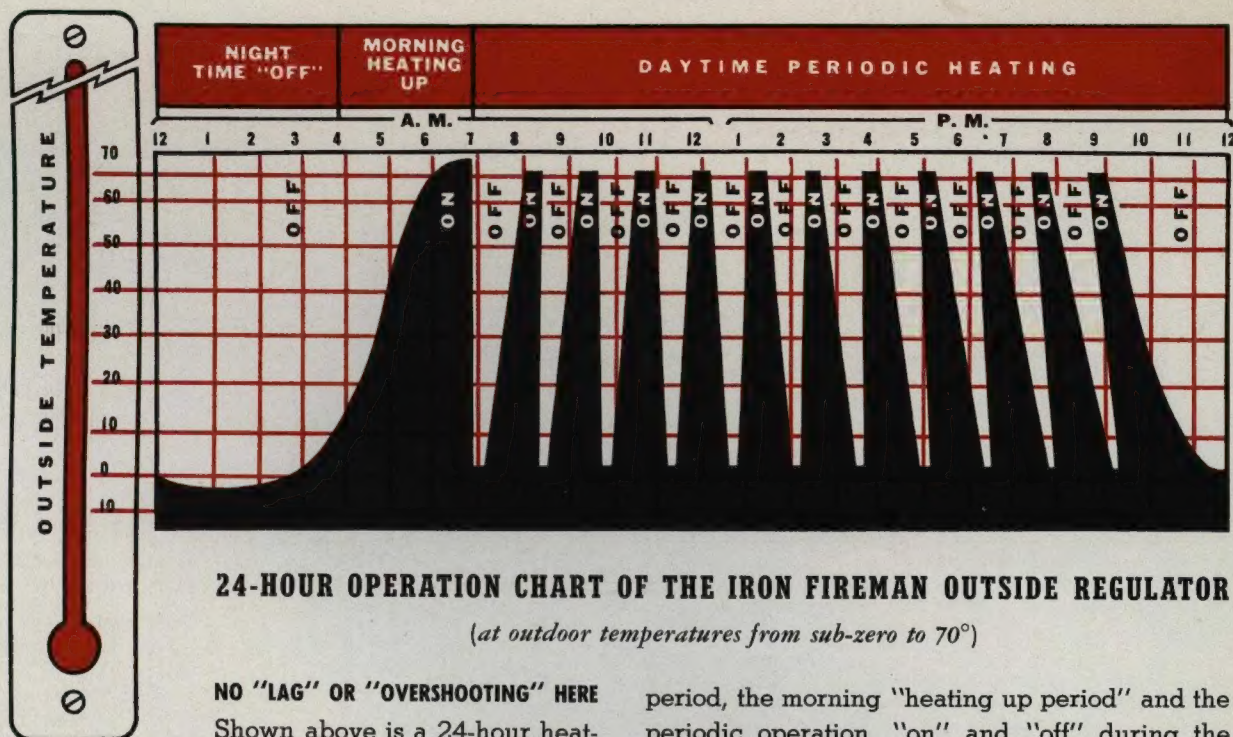
4. The heating of the building should be reduced at night to the economical night level, this again being controlled by the outdoor temperature.

The night operation of a heating system in any building should be controlled by the outdoor temperature. During milder weather the heating system can be dropped to a lower operating level. Under such conditions the night shut-down period can start considerably earlier in the day than during severe weather. Again the temperature sensitive outdoor bulb of the Iron Fireman Outside Regulator selects the proper time for shutting down boiler operation, in accordance with the existing outdoor temperature. Should the outdoor temperature drop suddenly after the stoker has been shut down for the night, the Outside Regulator will again register the effect of this temperature drop, and operate the stoker accordingly.

5. Means of manual adjustment should be provided so that the attendant can properly regulate heating for weekends, holidays, and under special weather conditions.

In almost every building there are certain times when the operation of the heating plant must be varied, and the normal heating level temporarily changed to meet special conditions. On some extremely windy or rainy days additional heat may be required for indoor comfort. In many commercial buildings and industrial plants normal indoor temperature need not be maintained over weekends or on holidays. To make adjustments for these special requirements easy, a "compensator dial" has been built into the Iron Fireman Outside Regulator. This dial adjustment can be raised or lowered by the janitor or engineer to increase or decrease the general heat level in the building, while allowing the outside control to operate normally in accordance with outdoor weather changes.





### 24-HOUR OPERATION CHART OF THE IRON FIREMAN OUTSIDE REGULATOR

(at outdoor temperatures from sub-zero to 70°)

#### NO "LAG" OR "OVERSHOOTING" HERE

Shown above is a 24-hour heating program in a typical building equipped with the Iron Fireman Outside Regulator. Follow the different outside temperatures horizontally across the diagram. See how the Outside Regulator varies the night "off"

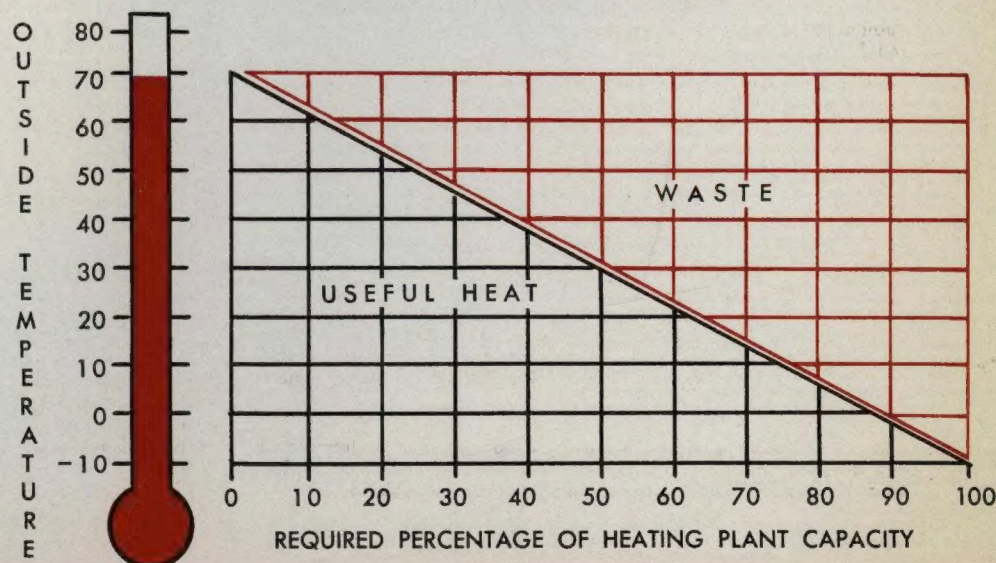
period, the morning "heating up period" and the periodic operation, "on" and "off" during the day, in accordance with the outdoor temperature. Notice the difference between the length of the "on" periods at, say, 10°, 30° and 50°. This instrument "tailors your heating" to the "hour to hour" weather!



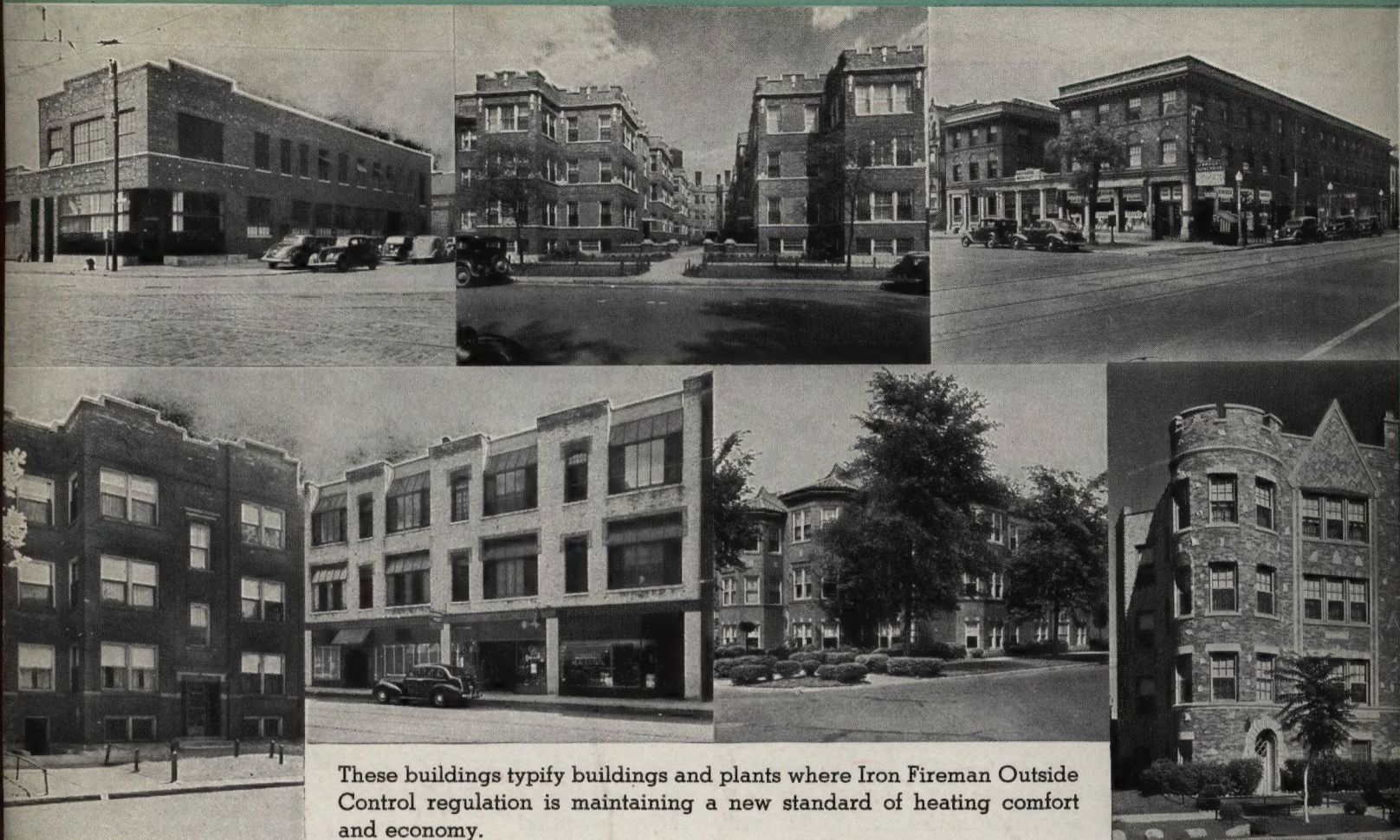
Your heating engineer sized and installed your radiators to heat your building to 70 degrees when outside weather is at the "design temperature". (Each locality has its own design temperature, based on climate, the most commonly used being ten degrees below zero).

Filling radiators continuously with steam when the outside weather is above the design temperature results in fuel waste, as shown by the chart to the right.

### Use this chart to check your heat waste at various outdoor temperatures







These buildings typify buildings and plants where Iron Fireman Outside Control regulation is maintaining a new standard of heating comfort and economy.

## A NEW STANDARD of indoor comfort and of real fuel economy

In buildings of all kinds — apartment houses, hotels, office, store and other business buildings — the heating comfort resulting from an Iron Fireman Outdoor Regulator installation means satisfied tenants, and added rental income. In offices and factories a uniformly comfortable indoor temperature during working hours results in higher employee efficiency and greater production.

From the health standpoint alone an installation more than pays its way. Elimination of overheating and of chilly conditions removes a common cause of colds.

Consider, too, the matter of fuel savings. Do your tenants or employees open windows while the heating plant is operating and thus heat "all outdoors"? This frequently happens in mild or changeable weather. Expensive heat is thus lost — money out of your pocket. Likewise, every hour a building is heated to normal indoor level, when the building is not in use, means additional fuel waste.

Why not let an Outside Regulator control the operation of your Iron Fireman stoker and immediately start enjoying the increased comfort and fuel economy it makes possible? Ask your Iron Fireman dealer for an immediate demonstration and learn at what moderate cost the instrument can be installed.

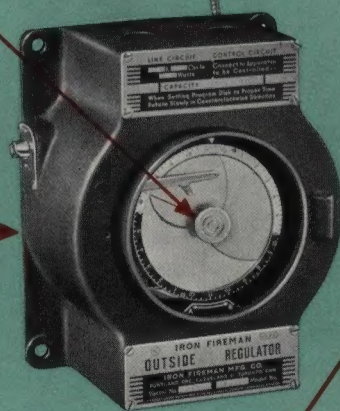


Adjustable program disc. This is the master control of Outside Regulator and works in conjunction with the outdoor temperature bulb.

The Iron Fireman Outside Regulator receives the "message" from the sensitive outdoor bulb, "consults" the program disc setting for building requirements, determines the operation required to satisfy the conditions, and instantly sends proper "instructions" to the stoker.

For use with steam, vapor, vacuum and hot water plants.

The capillary tube carries the "message" of outdoor conditions from the outside bulb to the control cabinet, mounted inside.



The outside temperature-responsive bulb, mounted outdoors, measures outdoor temperature level.

# IRON FIREMAN MANUFACTURING CO.

Cleveland, Ohio

Portland, Oregon

Toronto, Canada

Authorized Dealers Everywhere

COPYRIGHT 1939, IRON FIREMAN MFG. CO.  
FORM 552 PRINTED IN U.S.A.